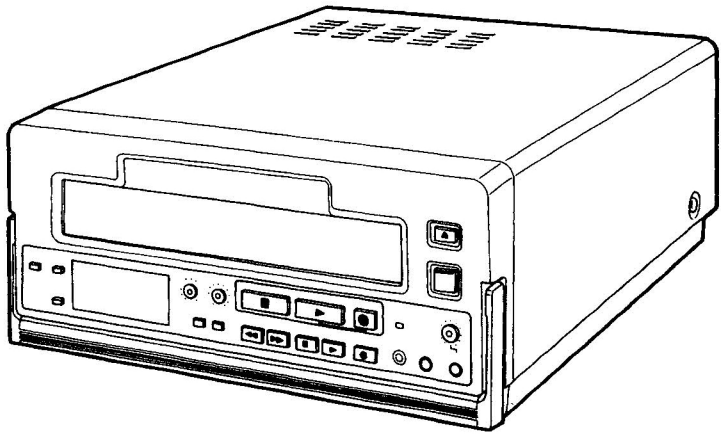
Video Cassette Recorder

Operating Instructions

Panasonic S VHS 625 Hi-Fi

AG-5700-E -B



Panasonic

SPECIFICATIONS

ITEM	SPECIFICATION
Power	Source: AC 220 V~240 V, 50~60 Hz Consumption: Approx. 26 W
Television Format	CCIR Standard (625 lines, 50 fields)
Tape Speed	23.39 mm/s
Tape Format	VHS tape, S-VHS tape
Recording Playback Time	180 min. with NV-E180
FF/REW Time	Approx. 3 min. with NV-T120
Video	Head: 2 rotary heads, helical scanning system
	Luminance: FM azimuth recording
	Colour signal: Comverted subcarrier phase shift recording
	Input Level: VIDEO IN (BNC); 1.0 Vp-p 75Ω unbalanced S-VIDEO (4P); Y: 1.0 Vp-p, 75Ω unbalanced C: 0.3 Vp-p, 75Ω unbalanced (burst level)
	Output level: VIDEO IN (BNC); 1.0 Vp-p 75Ω unbalanced S-VIDEO (4P); Y: 1.0 Vp-p, 75Ω unbalanced C: 0.3 Vp-p, 75Ω unbalanced (burst level)
	Signal-to-Noise Ratio: 45 dB (B/W, colour)
	Horizontal Resolution: VHS; 240 lines (B/W, color) S-VHS; 400 lines (b/w, color)

ITEM	SPECIFICATION
Audio	Head: Normal Audio/Control; 1 stationary head Hi-Fi Audio; 2 rotary heads Erase; 1 full track erase 1 Audio track erase
	Track: Hi-Fi; 2 ch Normal; 1 ch
	Input Level: AUDIO IN (PHONO); −8 dBv, 47 kΩ unbalanced MIC IN (Mini Jack); −60 dB, 600Ω
	Output Level: AUDIO OUTPUT (PHONO); −8 dBv, 1 kΩ unbalanced HEADPHONE (M3); 8Ω
	Frequency response: Normal; 80 Hz~10 kHz Hi-Fi; 20 Hz~20 kHz
	Hi-Fi Dynamic Range: 90 dB
	Signal-to-Noise Ratio: 45 dB (Normal)
Remote	Mini Jack (FRONT), RS-232C (REAR)
Operating Condition	Temperature: 41°F~104°F (5°C~40°C) Humidity: 35%~80%
Dimensions	10-5/8" (W)×4-1/16" (H)×13-5/16" (D) 270 mm (W)×120 mm (H)×340 mm (D)
Weight	Approx. 12.5 lbs 5.7 kg
Standard Accessory	S-VIDEO Cable (4P)
Optional Accessory	Remote Controller, AG-A11

Specifications are subject to change without notice.
Weight and dimensions shown are approximate.

INTRODUCTION

This Service Manual contains all the technical information which allows service personnels to understand and service the Panasonic S-VHS Video Cassette Recorder model AG-5700. The AG-5700 has many special Features as described later.

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SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohm meter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads connectors, control shafts,etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1M ohm and 5.2 M ohm.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞.

LEAKAGE CURRENT HOT CHECK (See Figure 1)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5k ohm, 10 watts resistor, in parallel with a 0.15uF capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

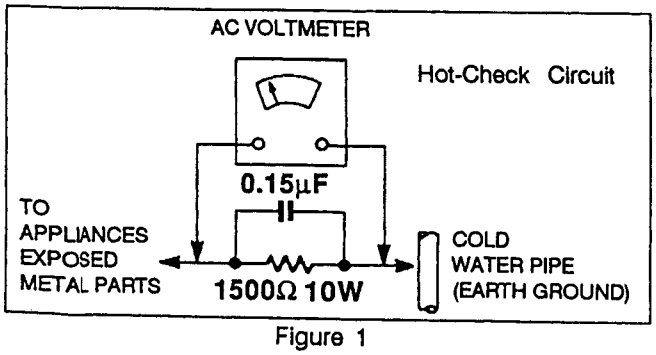

Figure 1

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground.
   Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device classified as anti-static can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package untilimmediately before you are ready to install it. (Most replacementES devices are packaged with leads eletcrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION : Be sure no power is applied to the chassis or circuit, and observe all otner asfety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

OPERATING INSTRUCTIONS
and
SERVICE INFORMATIONS

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1-1 Features

Recording and playback up to 3 hours
Using a 1/2" inch VHS or S-VHS cassette tape, you can record or playback in 3-hour mode.

Recording and playback in the S-VHS mode
With this unit, it is available to playback and record S-VHS cassette tape.

Illuminated buttons
The REC, PLAY and STOP buttons will light up when pressed.

Hi-Fi audio

Compact and light weight

Remote controlling by a computer
Connecting this unit to a computer via an RS-232C cable will allow remote control from the computer.

Sensor recording
This unit is equipped with the "SENSOR REC" function. When a video signal transmitted from a satellite is inputted, the unit will turn ON automatically and set to the recording mode.

Speedy Mechanism
The following operations start instantly after the corresponding buttons are pressed.
- Playback operation
- FF/REW operations
- Switching from search forward playback to search reverse playback, and vice versa.

Repeat playback
Repeat playback can be performed from tape beginning to its end or from tape beginning to interruption of the video signal.

Search playback
Locating any desired scene or position on the tape is made easy and fast by watching the tape being played back at about 7 times normal speed in forward or reverse direction.

High speed VISS (VHS Index Search System) Automatic Search
During playback, if a VISS signal has been recorded at the beginning of an event, the scene can be searched and then played back automatically.

Clear picture in still and slow-motion modes

Audio dubbing
Audio dubbing can be performed onto the normal audio of the prerecorded tape.

Video Insert
Video insert (including FM audio insert) is available by the control signals from the RS-232C remote control connector.

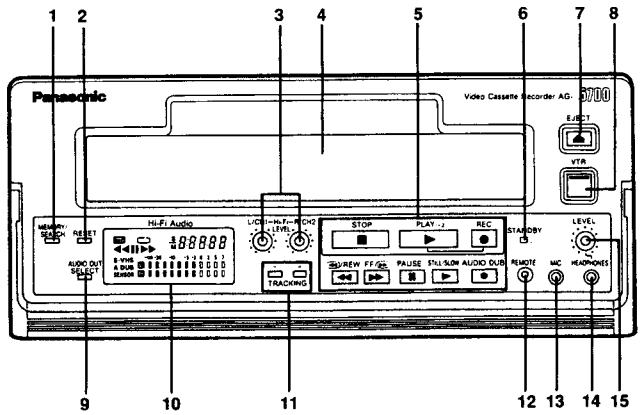
Cassette tape insertion/ejection in power OFF mode
Cassette tape insertion and ejection can be performed even when the power has been turned OFF.

Auto power ON
Power is turned ON automatically when the cassette tape is inserted in the unit.

Remote operation
Using an optional remote controller AG-A11, you can operate the unit about 5 meters away from the unit.

Controls

Front

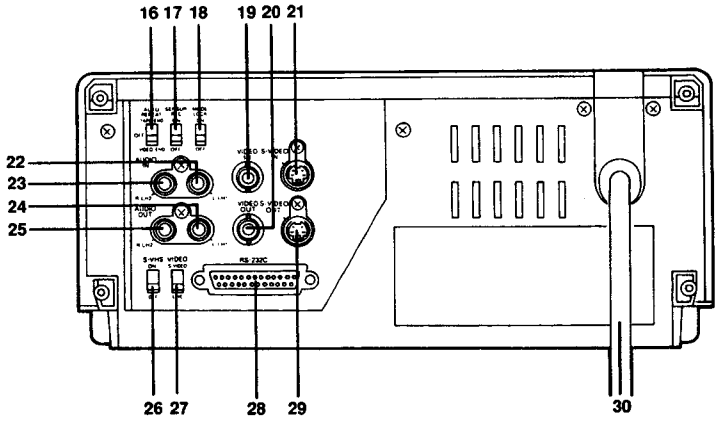


No.	Name
1	Memory/Search Button
2	Reset Button
3	Hi-Fi Audio CH1/CH2 Level Controls
4	Cassette Holder
5	Operation Buttons STOP, PLAY, REC, REW, FF, PAUSE, STILL/SLOW, AUDIO DUB
6	Standby Lamp*1
7	Eject Button

No.	Name
8	VTR Switch
9	Audio Monitor Output Selector
10	Counter/Audio Level Meters
11	Tracking Buttons
12	Remote Jack (Mini-Jack)
13	Microphone Jack
14	Headphone Jack (Mini-Jack)
15	Headphone Level Control

*1 Standby Lamp lights up when VTR Switch is OFF.

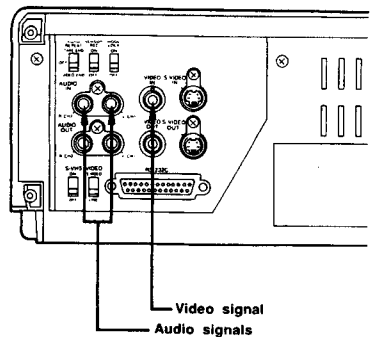
Rear

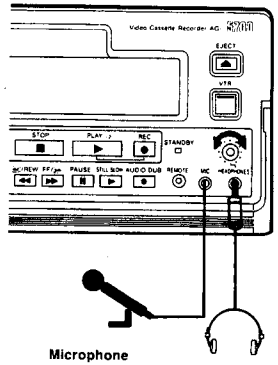


No.	Name
16	Auto Repeat Switch
17	Sensor Recording Switch
18	Mode Lock Switch
19	VIDEO IN Connector (BNC)
20	VIDEO OUT Connector (BNC)
21	S-VIDEO IN Connector
22	Audio L/CH1 IN Connector (PHONO)
23	Audio R/CH2 IN Connector (PHONO)

No.	Name
24	Audio L/CH1 OUT Connector (PHONO)
25	Audio R/CH2 OUT Connector (PHONO)
26	S-VHS Selector
27	Video Selector
28	RS-232C Remote Control Connector
29	S-VIDEO OUT Connector
30	Power Cord

Recording





Microphone
(audio recorded as Hi-Fi audio and normal audio)

Note:
If connections are made both to the MIC and audio jacks, the microphone takes precedence.

CH / Audio Input	Hi-Fi	Normal
L/CH1	L/CH1*1	L/CH1
R/CH2	R/CH2*2	R/CH2
L/CH1 & R/CH2	Stereo (L/CH1 & R/CH2)	Mixed Audio (L/CH1 & R/CH2)

Audio Signals are recorded as described on the table.
*1: Audio L/CH1 is recorded on both L/CH1 and R/CH2.
*2: Audio R/CH2 is recorded on both L/CH1 and R/CH2.

Audio Monitoring

When using headphones, you can adjust the volume using this control. To reduce the audio level, move the control to the left, and vice versa.

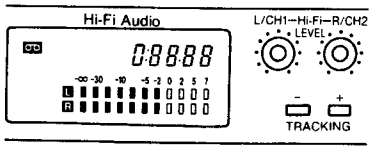
- Use headphones. (mini plug)
- If you use high impedance headphones, the audio level may change.

Preparations

- Load the pre-recorded cassette tape. (Check that the tab on the cassette to prevent accidental erasure is still intact.) The STOP Button and the cassette IN indicator " " (in the counter) will light up.
- Set the S-VHS Selector and the Video Selector on the rear panel to the desired position.

Audio Level Adjustment (Hi-Fi sound only)

The audio level can be adjusted only for Hi-Fi audio. Adjust the Hi-Fi Audio Level Controls so that the audio level meter indication is set to around 2 (so that the 2 level is not exceeded).



Operation

Recording starts when the REC and PLAY Buttons are pressed together.

- A cassette tape without its accidental erasure prevention tab will be ejected. Use a tape with its tab intact.

When the PAUSE Button is used, the sequence of operation is as follows.

❶ Play back the tape and find the location which is to be recorded. Then press the PAUSE Button. The PAUSE indicator will appear on the tape counter and VTR is set to the playback pause mode.

❷ Press the REC and PLAY Buttons together. The REC Lamp now comes on and the VTR is set to the recording pause mode.

❸ When the PAUSE Button is pressed again, the VTR is released from the pause mode and recording begins.

Stopping Recording

Press the STOP Button.

Playback

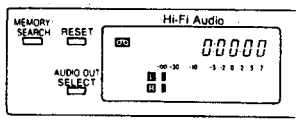
Preparations

- Press the VTR Switch to ON.
- Be sure that the Mode Lock Switch is OFF.
- Be sure that the Auto Repeat Switch is OFF.
- Insert a recorded tape.
  The STOP Button and the cassette IN indicator " " (in the counter) will light up.
- Turn TV ON.

Audio Monitor Output Selector

Set the Audio Monitor Output Selector to the desired position.
When this unit is turned ON, the Hi-Fi mode is automatically selected. Each time you press the Audio Monitor Output Selector, the audio output mode will change as follows:

Hi-Fi → L CH → R CH → No indication(Linear)



Mode Lock Switch

This switch makes it impossible to operate the switches on the front panel.
When it is set to ON, all the switches on the front panel do not function. However, operation is available using the wired remote controller or the RS-232C remote control signal even if the Mode Lock Switch is set to ON.

This unit cannot be recorded or played back in LP mode. Therefore, be sure not to playback tapes recorded in LP mode.

Normal Playback

Press the Play Button. Play Lamp lights and playback will start.
As this unit is equipped with the digital automatic tracking function, normally adjustment is unnecessary. If noise partially appears in the playback picture as shown below, press the Tracking " + " and " − " Buttons simultaneously to reduce the noise.

Precautions

If you leave this unit near a monitor television, interference from the monitor television may cause noise to get into the audio circuit. Be sure, therefore, to keep the unit a suitable distance (at least 20 cm) away from a monitor television.

Double-speed Playback

Press the PLAY Button during normal playback. The playback picture can be viewed at about twice normal playback speed. To return to normal playback, press the PLAY Button.

Slow Motion Playback

Press the SLOW Button during playback. The playback picture can be viewed at a lower speed. Each time you press the STILL/SLOW button, the unit will run at one of the slow motion speeds shown below. To return to normal playback, press the PLAY Button.

Normal Speed→ Still→ 1/30→ 1/20→ 1/10→ 1/7→ 1/5

- If slow motion playback continues for over 5 minutes, the unit will go into the stop mode automatically.
- No sound is heard during slow motion playback.

Rewind and Fast Forward the tape

When the unit is in stop mode:
Press the Rewind (REW) Button to rewind the tape.
Press the Fast Forward (FF) Button to move the tape forward rapidly.

Search Playback

- When the FF Button is held down while the unit is in the playback, slow motion playback or still, the tape will be played back in the forward direction at about 7 times normal speed.
- When the Rewind Button is held down while the unit is in the playback, slow motion playback or still, the tape will be played back in the reverse direction at about 7 times normal speed.

When the Memory/Search Button is pressed and "S" display appears in the counter, search forward or reverse playback can be obtained without keeping the FF or REW Button depressed.

- To release the Search Forward/Reverse manually, see page 10, section "Search".
- If this function is maintained for more than 10 minutes, the unit automatically returns to the previous mode.
- No sound is heard during SEARCH mode.
- Colour programme may be played back in Black and White or playback image may be dark during SEARCH mode, but this is not a malfunction.
- A skew may occur on the picture during SEARCH mode, but this is not a malfunction.
- When the picture rolls vertically in the SEARCH mode, adjust the vertical hold control on the TV set.

Still Playback

Press the Pause Button during normal playback or during slow motion playback. Press the Pause Button once again to resume normal playback.

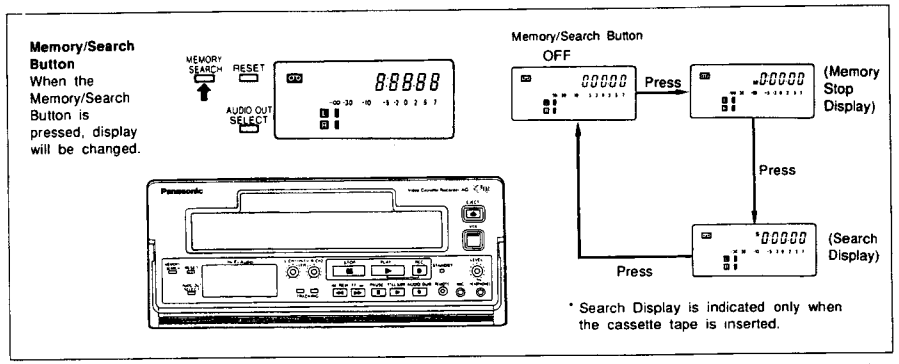
- If noise appears during still playback, set for slow motion mode and adjust with the Tracking Buttons (either "+" or "–") to minimize the bands of noise as shown below, then press the Pause Button.

- If still playback continues for more than 5 minutes, the unit will go into the stop mode automatically.
- A distortion may occur on the picture during STILL mode, but this is not a malfunction.
- No sound is heard during STILL mode.
- Colour programme may be played back in Black and White or playback image may be dark during STILL mode, but this is not a malfunction.

After Finishing Playback

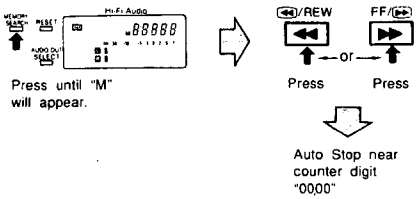
Press the Stop Button to stop the playback.

Counter



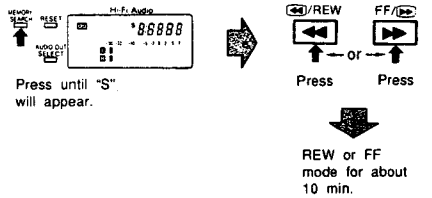
Memory Stop

When the Memory/Search Button is pressed and the "M" display lights on the counter, the tape can be stopped near counter digit "0000" during FF or REW modes.



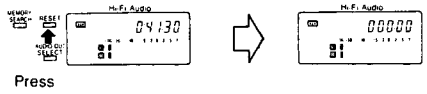
Search

When the Memory/Search Button is pressed until the "S" display lights on the counter display, and the FF or REW button is pressed during normal playback or still playback, search forward or reverse playback can be held for about 10 minutes. Thereafter, the unit will automatically return to the previous mode.



Counter Reset

If you press the reset button when "S" is not displayed, the counter indication will become "00000".



- **To release the Search Forward/Reverse manually, proceed as follows:**

❶ Press the Play Button. The unit will go into the following mode.

Previous Mode	Subsequent Mode
Still Playback	→ Still Playback
Normal Playback	→ Normal Playback

❷ Press the Memory/Search Button to clear the "S" display. The unit will go into the previous mode.

❸ Press the Stop Button. The unit will go into the stop mode.

Intro Search

Press the Memory/Search Button and display the "S" indication in the counter display. When a VISS signal is found during FF operation, the tape is played back for about 10 seconds. Each time a VISS signal is found during FF operation, this function will repeat. Press the Play Button twice when desired scene is found. (If Play Button is pressed only once, the tape will playback in double-speed.)

Repeat Playback

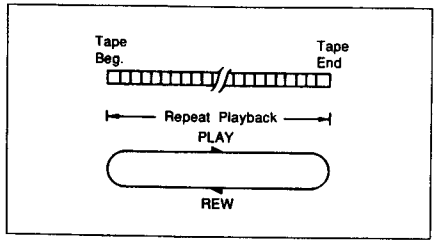
Repeat playback between tape beg. and tape end

If it is desired to play back the tape repeatedly from tape beginning to tape end, proceed as follows:

❶ Set the Auto Repeat Switch to the "TAPE END" position.

❷ Press the Play Button.

Set the Auto Repeat Switch to "TAPE END".



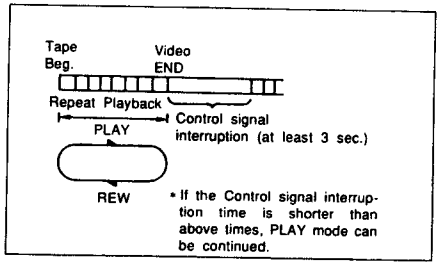
Repeat playback between tape beg. and video end

If it is desired to play back the tape repeatedly from tape beginning to interruption of the video signal, first make sure that video recording on the tape is interrupted for at least 3 seconds (see diagram).

❶ Set the Auto Repeat Switch to the "VIDEO END" position.

❷ Press the Play Button.

Set the Auto Repeat Switch to "VIDEO END".


Tape Beg.
Video END
Repeat Playback
PLAY
Control signal interruption (at least 3 sec.)
REW
• If the Control signal interruption time is shorter than above times, PLAY mode can be continued.

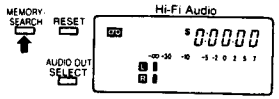
Notes:

- If short repeat playback is continued many times, the repeated section of tape may be damaged.
- NV-E240 type cassettes are not recommended for Repeat Playback use.

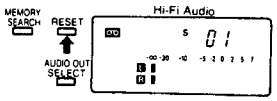
VISS (VHS Index Search System)

VISS signal is recorded at the beginning of each recording. Every time the recording starts, VISS signal is recorded automatically at the beginning (including external timer recording). Moreover, VISS signal can be recorded manually by pressing the Record and Play Buttons simultaneously during recording. When the VISS signal is recorded at the beginning of each recording, it is available to select a desired scene easily.

❶ Press the Memory/Search Button and light the "S" indication.



Press the Reset Button to set to VISS mode. Each time the button is pressed, index number 01 to 20 can be selected.



❷ Press the FF or REW Button.

- The index number will increase one by one each time a VISS signal is found.
- Playback starts automatically when the number becomes to zero.
- The fast forward or rewinding speed is a little slower comparing to the normal FF/REW speed.

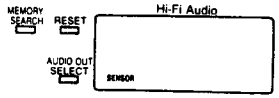
Sensor Recording

Sensor Recording System

Operate the unit by following the procedure below to record the video signal transmitted from a satellite.

❶ Set the Sensor Recording Switch to "ON".

The indication "SENSOR" will appear in the counter and the unit is set to the recording stand-by mode after the unit is automatically turned OFF.



Note:
The indication "SENSOR" will flash when no tape is inserted or tape with broken removable tab is inserted.

❷ When the unit receives a video signal, the power is automatically turned ON and the recording starts. The recording stops at the tape end or when there is no more video input signal, and the unit is turned OFF again.

(4) Command list

1) BASIC OPERATION COMMAND (KEY COMMAND)

■ KEY COMMAND

Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
OSP (STOP)	All operations will stop, and the VTR will enter the STOP mode.	[STX]OSP[ETX]	[STX]OSP[ETX]
OEJ (EJECT)	The cassette will be ejected.	[STX]OEJ[ETX]	[STX]OEJ[ETX]
OPL (PLAY)	This is the playback command. Playback takes place at normal speed only when the VTR is in the STOP, FF, REW, REVERSE, PLAY, SLOW or SLOW PAUSE mode.	[STX]OPL[ETX]	[STX]OPL[ETX]
ORW (REWIND)	This is the REW or REVIEW command. If the VTR is in the STOP or FF mode, it will go into the REW mode when this command is input. If the VTR is in the PLAY, PLAY PAUSE, REVERSE PLAY, SLOW or SLOW PAUSE mode, it will go into the REVIEW mode. However, it is necessary to continuously input this command at intervals of no more than 50 msec in order to sustain the REVIEW mode.	[STX]ORW[ETX]	[STX]ORW[ETX]
OFF (FAST FORWARD)	This is the FF or CUE command. If the VTR is in the STOP REW mode, the VTR will go into the FF mode when this command is input. If the VTR is in the PLAY, PLAY PAUSE, REVERSE PLAY, SLOW or SLOW PAUSE mode, it will go into the CUE mode. However, it is necessary to continuously input this command at intervals of no more than 50 msec in order to sustain the CUE mode.	[STX]OFF[ETX]	[STX]OFF[ETX]
OPA (PAUSE)	This is the pause or pause cancel command. If the VTR is in the PLAY, REVERSE PLAY or SLOW mode, it will go into the PLAY PAUSE mode. If it is in the REC mode, it will go into the REC PAUSE mode. If the VTR is in the SLOW PAUSE mode, it will go into the PLAY PAUSE mode, however the operation of the VTR will not change. If the VTR is in the INSERT, AUDIO VIDEO INSERT or AUDIO DUB mode, it will go into the PLAY PAUSE mode. If it is in the PLAY PAUSE mode, it will go into the PLAY mode. If it is in the REC PAUSE mode, it will go into the REC mode. If it is in the INSERT PAUSE mode, it will go into the INSERT mode. If it is in the AUDIO DUB PAUSE mode, it will go into the AUDIO DUB mode. If it is in the AUDIO VIDEO INSERT PAUSE mode, it will go into the AUDIO VIDEO INSERT mode.	[STX]OPA[ETX]	[STX]OPA[ETX]
ORC (REC)	This is the recording command. When the VTR is in the STOP mode, it will go into the REC mode, and when it is in the PLAY PAUSE or SLOW PAUSE mode, it will go into the REC PAUSE mode. However, if the cassette tab is broken, the VTR will go into the EJECT mode.	[STX]ORC[ETX]	[STX]ORC[ETX]
OAF (ADVANCE FIELD)	This is the field advance (forward direction) command. It advances the tape one frame at a time when the VTR is in the PLAY PAUSE or SLOW PAUSE mode.	[STX]OAF[ETX]	[STX]OAF[ETX]
OAR (ADVANCE REVERSE FIELD)	This is the field advance (reverse direction) command. It moves the tape in the reverse direction one frame at a time when the VTR is in the PLAY PAUSE or SLOW PAUSE mode.	[STX]OAR[ETX]	[STX]OAR[ETX]
OPR (REVERSE PLAY)	This is the reverse play command. If the VTR is in the PLAY, PLAY PAUSE, SLOW or SLOW PAUSE mode, it will go into the REVERSE PLAY mode.	[STX]OPR[ETX]	[STX]OPR[ETX]
OSL (SLOW MODE SET)	This command is used to perform pre-processing before controlling the slow speed. Input this command once only before sending the OSD or OSU command. If this command is input when the VTR is in the STOP, PLAY, REW, FF, PLAY PAUSE, REVERSE PLAY or SLOW mode, the VTR will go into the SLOW PAUSE mode. Subsequently, the VTR will accept the OSD or OSU command.	[STX]OSL[ETX]	[STX]OSL[ETX]
OSD (SPEED DOWN)	This command controls the playback speed in the – direction.	[STX]OSD[ETX]	[STX]OSD[ETX]
	–7, –5, –2, –1, –1/5, –1/7, –1/10, –1/20, –1/30, SLOW PAUSE, +1/30, +1/20, +1/10, +1/7, +1/5, +1, +2, +5, +7 ← OSD command Each time an OSD command is sent, the speed setting will shift in the direction. Send this command at intervals of at least 150 msec. If the speed is at the maximum value (–7 times normal speed), it will not shift any further.		
OSU (SPEED UP)	This command controls the playback speed in the + direction.	[STX]OSU[ETX]	[STX]OSU[ETX]
	–7, –5, –2, –1, –1/5, –1/7, –1/10, –1/20, –1/30, SLOW PAUSE, +1/30, +1/20, +1/10, +1/7, +1/5, +1, +2, +5, +7 → OSU command Each time an OSU command is sent, the speed setting will shift in the direction. Send this command at intervals of at least 150 msec. If the speed is at the maximum value (+7 times normal speed), it will not shift any further.		

■ INSERT COMMAND

Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
EIN (INSERT)	This is the insert pre-processing command. If this command is sent when the VTR is the PLAY PAUSE or SLOW PAUSE mode, the VTR will go into the INSERT/PAUSE mode. When the VTR is in the AUDIO DUB PAUSE mode, it will go into the AUDIO VIDEO INSERT PAUSE mode. Subsequently, when the OPA command is sent, an INSERT operation will take place. If the cassette tab is broken, the VTR will go into the EJECT mode when the EIN command is sent.	[STX]EIN[ETX]	[STX]EIN[ETX]
EAD (AUDIO DUB)	This is the pre-processing command for the audio dubbing. If this command is sent when the VTR is in the PLAY PAUSE or SLOW PAUSE mode, the VTR will go into the AUDIO DUB/PAUSE mode. Subsequently, when the OPA command is sent, the AUDIO DUB operation will take place. If the cassette tab is broken, the VTR will go into the EJECT mode when the EAD command is sent.	[STX]EAD[ETX]	[STX]EAD[ETX]
EIT: DATA	This command specifies an insert up to the specified position. If this command is input when the VTR is in the PLAY PAUSE, SLOW PAUSE or INSERT PAUSE mode, a VIDEO insert operation will take place to the specified counter position. When the tape reaches the position specified by DATA, the insert operation will end, and the VTR will go into the PLAY PAUSE mode. This operation can be canceled by an OSP command. If the operation mode changes as a result of a key input from the VTR proper or the remote controller, the insert operation will be canceled. When a command other than OSP, QCD, QOP, QOS, RCK, QRV or QID is sent by an EIT command during an insert operation, a command error will be returned from the VTR.	[STX]EIT: □□□ □□□□□ [ETX] **Counter data** □ □ □□ □□ □□ Sign Hours Minutes Seconds Frames –: Minus sign +: Blank Example: When an insert operation is performed up to 1 hour, 12 minutes, 35 seconds and 00 frames [STX]EIT:_1123500[ETX] Be sure to insert a blank.	[STX]EIT[ETX]
EAT: DATA	This command specifies an audio dubbing up to the specified position. If this command is input when the VTR is in the PLAY PAUSE, SLOW PAUSE or AUDIO DUB PAUSE mode, an audio dubbing operation will take place to the specified position. When the tape reaches the position specified by DATA, the audio dubbing operation will end, and the VTR will go into the PLAY PAUSE mode. This operation can be canceled by an OSP command. If the operation mode changes as a result of a key input from the VTR proper or the remote controller, the audio dubbing operation will be canceled. When a command other than OSP, QCD, QOP, QOS, RCK, QRV or QID is sent by an EAT command during an audio dubbing operation, a command error will be returned from the VTR.	[STX]EAT: □□□ □□□□□ [ETX] **Counter data** □ □ □□ □□ □□ Sign Hours Minutes Seconds Frames –: Minus sign +: Blank Example: When an audio insert operation is performed up to 1 hour, 12 minutes, 35 seconds and 00 frames [STX]EAT:_1123500[ETX] Be sure to insert a blank.	[STX]EAT[ETX]

Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
EVT: DATA	This command specifies an AUDIO & VIDEO INSERT up to the specified position. If it is sent when the VTR is in the AUDIO DUB PAUSE or AUDIO & VIDEO INSERT PAUSE mode, an AUDIO & VIDEO INSERT operation will take place up to the specified position. When the tape reaches the position specified by DATA, the AUDIO & VIDEO INSERT operation will end, and the VTR will go into the PLAY PAUSE mode. This operation can be canceled by an OSP command. If the operation mode changes as a result of a key input from the VTR proper or the remote controller, the AUDIO & VIDEO INSERT operation will be canceled. When a command other than OSP, QCD, QOP, QOS, RCK, QRV or QID is sent during EVT in AUDIO & VIDEO INSERT operation, a command error will be returned from the VTR.	[STX]EVT: □□□ □□□□□ [ETX] **Counter data** □ □ □□ □□ □□ Sign Hours Minutes Seconds Frames –: Minus sign +: Blank Example: When an audio insert operation is performed up to 1 hour, 12 minutes, 35 seconds and 00 frames [STX]EVT:_1123500[ETX] Be sure to insert a blank.	[STX]EVT[ETX]

Precaution:

- If the VTR proper goes into the Memory Stop mode during an insert operation (EIN, EVT, EIT), it will cut off when the counter reading becomes "0:00.00.00". Be sure, therefore, to cancel the Memory Stop mode in advance. An insert operation will also be interrupted when a VTR key, remote controller key, Memory/Search button or Reset button is operated, so do not operate these keys or buttons during an insert operation.

■ SEARCH COMMAND

Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
SMC (SEARCH MODE COARSE)	This command sets the mode in which a search is performed by the SCP or SCS command to the High Speed Search mode. The search time can be reduced by performing a search in the FF or REW mode, however in this case the search accuracy falls off. If high search accuracy is required, use the following SMF command. If this command is sent, the VTR will be maintained in the COARSE mode until SMF is sent.	[STX]SMC[ETX]	[STX]SMC[ETX]
SMF (SEARCH MODE FINE)	This command sets the mode in which a search is performed by the SCP or SCS command to the Precision Search mode. The shuttle search speed is controlled according to the distance to the target, and the search accuracy is ±1 frame. If this command is sent once, the VTR will go into the FINE mode and remain in that mode until SMC is sent. **Precaution:** In this mode, a search is performed by CUE or REVIEW, hence a search cannot be performed for more than 10 minutes (more than 70 minutes on the tape). Processing is interrupted mid-way in order to protect the tape.	[STX]SMF[ETX]	[STX]SMF[ETX]

Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
SCP: DATA	This command searches for the position specified by DATA, then puts the VTR into the PLAY mode at the end of the search. The search takes place in the mode specified by the SMC or SMF command. It is accepted if the VTR is in the STOP, PLAY, REW, FF, PLAY PAUSE, REVERSE PLAY, SLOW PAUSE or SLOW mode. The search can be canceled by means of the OSP or OEJ command. It will also be canceled if the operation mode changes as a result of a key input from the VTR proper or the remote controller. If a command other than OSP, OEJ, QCD, QOP, QOS, RCK, QRV or QID is sent during a search operation, a command error will be returned from the VTR.	[STX]SCP: □□□□□□□□[ETX] **Counter data** □ □ □□ □□ □□ Sign Hours Minutes Seconds Frames –: Minus sign +: Blank Example: A search takes place up to –1 hour, 12 minutes, 35 seconds and 00 frames, then the tape is played back. [STX]SCP: –1123500[ETX]	[STX]SCP[ETX]
SCS: DATA	This command searches for the position specified by DATA, then puts the VTR into the SLOW PAUSE mode at the end of the search. It is accepted if the VTR is in the STOP, PLAY, REW, FF, REVERSE PLAY, SLOW, PLAY PAUSE or SLOW PAUSE mode. The search takes place in the mode specified by the SMC or SMF command. It can be canceled by means of the OSP or OEJ command. It will also be canceled if the operation mode changes as a result of a key input from the VTR proper or the remote controller. If a command other than OSP, OEJ, QCD, QOP, QOS, RCK, QRV or QID is sent during a search operation, a command error will be returned from the VTR.	[STX]SCS: □□□□□□□□[ETX] **Counter data** □ □ □□ □□ □□ Sign Hours Minutes Seconds Frames –: Minus sign +: Blank Example: A search takes place up to 1 hour, 12 minutes, 35 seconds and 00 frames, then the picture freezes. [STX]SCS:_1123500[ETX]	[STX]SCS[ETX]
SPT: DATA	This command causes playback to take place up to the specified position, then stop when a PAUSE command is input. It is accepted when the VTR is in the STOP, REW, FF, PLAY, REVERSE PLAY, SLOW, PLAY PAUSE or SLOW PAUSE. If a command other than OSP, OEJ, QCD, QOP, QOS, RCK, QRV or QID is sent by SPT command during a play operation, a command error will be returned from the VTR. Playback will be canceled if the operation mode changes as a result of a key input from the VTR proper or the remote controller.	[STX]SPT: □□□□□□□□[ETX] **Counter data** □ □ □□ □□ □□ Sign Hours Minutes Seconds Frames –: Minus sign +: Blank	[STX]SPT[ETX]

■ **SHUTTLE COMMAND**

Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
OSF: DATA (SHUTTLE FORWARD)	This is the forward direction shuttle command. It enables the playback speed to be varied between STILL and +7 times normal speed. If this command is sent when the VTR is in the STOP, REW, FF, PLAY, REVERSE PLAY, SLOW, PLAY PAUSE or SLOW PAUSE mode, playback will take place at the speed specified by DATA. This operation can be canceled by means of the OSP or OEJ command. It can also be canceled by means of a key input from the VTR proper or the remote controller. If a command other than OSP, OEJ, OSF, OSR, QCD, QOP, QOS, RCK, QRV or QID is sent during a shuttle operation, a command error will be returned from the VTR.	[STX]OSF: □[ETX]	[STX]OSF[ETX]
		The relationship between the data of □ and the playback speed of the VTR is shown in the table below.	
		Data of □ / **Playback speed of VTR** 0 / STILL 1 / +1/30 2 / +1/5 3 / +1 4 / +2 5 / +7	
OSR: DATA (SHUTTLE REVERSE)	This is the reverse direction shuttle command. It enables the playback speed to be varied between STILL and –7 times normal speed. If this command is sent when the VTR is in the STOP, REW, FF, PLAY, REVERSE PLAY, SLOW, PLAY PAUSE or SLOW PAUSE mode, playback will take place at the speed specified by DATA. This operation can be canceled by the OSP or OEJ command. It can also be canceled by means of a key input from the VTR proper or the remote controller. If a command other than OSP, OEJ, OSF, OSR, QCD, QOP, QOS, RCK, QRV or QID is sent during a shuttle operation, a command error will be returned from the VTR.	[STX]OSR: □[ETX]	[STX]OSR[ETX]
		The relationship between the data of □ and the playback speed of the VTR is shown in the table below.	
		Data of □ / **Playback speed of VTR** 0 / STILL 1 / –1/30 2 / –1/5 3 / –1 4 / –2 5 / –7	

■ **Power function**

Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
POW	This command is used to turn the power ON and OFF. Normally, the VTR accepts it at any time. However, it is not accepted while EVT, EAT, EIT, SPT, SCS, SCP, OSR, OSF or CCL is being processed. (This is because the VTR cannot accept commands other than OSP or OEJ while EVT, EAT EIT, SPT, SCS, SCP, OSR, OSF or CCL is being processed.) The power ON/OFF operation can be controlled by a toggle. However, if the VTR is turned OFF during REW, the tape will be wound to the beginning then the power will be cut off.	[STX]POW[ETX]	[STX]POW[ETX]
PON	This command turns the power ON.	[STX]PON[ETX]	[STX]PON[ETX]
POF	This command turns the power OFF. The VTR can accept POF at any time apart from when EVT, EAT, EIT, SPT, SCS, SCP, OSR, OSF or CCL is being processed. However, if a command is sent during REW, the VTR will wind the tape to the beginning then the power will be cut off.	[STX]POF[ETX]	[STX]POF[ETX]

■ *Reading various statuses*

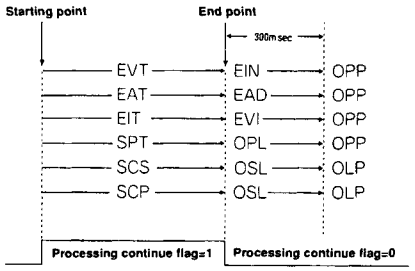
Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
QOP (OPERATION MODE)	This command inquires of the operation mode of the VTR. The VTR returns the following code by means of the QOP code.	[STX]QOP[ETX]	[STX]□□□[ETX]

Operation mode of VTR	Code	Operation mode of VTR	Code
POWER OFF	POF	CUE	OSF
STOP	OSP	REV	OSR
EJECT	OEJ	SLOW	OSL
REWIND	ORW	SLOW PAUSE	OLP
FAST FORWARD	OFF	PLAY TO FRAME	SPT
RECORD	ORC	INSERT VIDEO TO FRAME	EIT
REC PAUSE	ORP	INSERT AUDIO TO FRAME	EAT
AUDIO DUBBING	EAD	INSERT AUDIO & VIDEO TO FRAME	EVT
A-DUB PAUSE	EAP	COUNTER CALIBRATE	CCL
PLAY PAUSE	OPP	PLAY	OPL
INSERT	EIN	REVERSE PLAY	OPR
INSERT PAUSE	EIP	×2 PLAY	OP2
AUDIO & VIDEO INSERT	EVI	REVERSE ×2 PLAY	OM2
AUDIO & VIDEO INSERT PAUSE	EVP	DIRECT SEARCH	OF□ OR□

■ **Precautions for executing a QOP command**

- Any command other than the SMC, SMF, QOP, QOS, QCD, QRV, QID, CRT or RCK command causes the mode of the VTR to change. If QOP is executed immediately after a command is sent, processing inside the VTR will not end completely, hence the previous mode will be returned from the VTR. To prevent this, wait for at least the time necessary for the mode to change, that is, about 300 msec., before sending the QOP command.
- If EVT, EAT, EIT, SPT, SCS or SCP is sent, the VTR will perform processing according to the particular command that was sent. If EVT, EAT, EIT or SPT was sent, the VTR will finally go into the PLAY PAUSE mode at the specified counter position. If SCS or SCP was sent, the VTR will go into the SLOW PAUSE mode. This process is shown in the figure below.

■ **Return data sent from the VTR in response to a QOP command**



QOS commands are often used to ask the VTR regarding the situation of processing using these commands. For this reason, the timing between the commands and processing continue flag is also shown in the above table.

Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
QOS (OPERATION STATUS)	This command inquires of the processing state of the VTR. The VTR transmits the internal processing state in the form of a bit map, as shown in the following table. The communications format divides the data of TABLE 1 into the upper four bits and the lower four bits, enabling the data to be returned in the sequence upper data of ADRS 0, lower data of ADRS 0, upper data of ADRS 1, lower data of ADRS 1, ..., after [STX] OPS, as indicated by the following data. Four bits of this data can be expressed in hexadecimal form (0, 1, 2, ... E, F), converted into ASCII code, and returned. Example: Bit map 0 1 0 0 1 0 1 0 Hexadecimal expression: 4 A ASCII code: 34H 41H	[STX]QOS[ETX]	[STX]OPS□□□□□□□□[ETX] □ DATA ADRS0H □ DATA ADRS0L □ DATA ADRS1H □ DATA ADRS1L □ DATA ADRS2H □ DATA ADRS2L □ DATA ADRS3H □ DATA ADRS3L □ DATA ADRS4H □ DATA ADRS4L

TABLE 1 INTERNAL PROCESSING DATA

(Inscription method 1/0)

Address	7	6	5	4	3	2	1	0
DATA ADRS 0	0	0	0	0	0	0	0	0
DATA ADRS 1	Processing interruption	Processing continue	0	0	0	0	0	0
DATA ADRS 2	REC INHIBIT TAB	CASSETTE IN	VV	0	VTR STATUS			
DATA ADRS 3	0	0	0	0	0	0	0	0
DATA ADRS 4	0	Indetermi-nate	Indetermi-nate	Indetermi-nate	0	0	0	0

Processing interruption: Means that processing of the EVT, EAT, EIT, SPT, SCS, SCP, OSR, OSF or CCL command (continue command) is interrupted for some reason or other. When processing is interrupted, the bit becomes "1", and is held at "1". If the above continue command is sent once again, this flag will be cleared.

Processing continue: Means that processing of the EVT, EAT, EIT, SPT, SCS, SCP, OSR, OSF or CCL command (continue command) is being continued. While processing is taking place, the bit is "1". When processing ends or if it is interrupted, the flag is cleared.

REC INHIBIT TAB: If the tab on the cassette is broken, the bit becomes "1".

CASSETTE IN: If the tape is inserted, the bit becomes "1".

VV: Means that the VTR has switched over to the playback screen. While the playback screen appears, the bit is "1".

VTR STATUS: Refer to the following table on the next page.

TABLE 2 VTR STATUS DATA

BIT3~BIT0	VTR STATUS	BIT3~BIT0	VTR STATUS
1, 1, 1, 1	INSERT PAUSE OR AV INSERT PAUSE	0, 1, 1, 1	POWER OFF
1, 1, 1, 0	INSERT OR AV INSERT	0, 1, 1, 0	SLOW
1, 1, 0, 1	AUDIO DUB PAUSE	0, 1, 0, 1	CUE
1, 1, 0, 0	AUDIO DUBBING	0, 1, 0, 0	REVIEW
1, 0, 1, 1	RECORDING PAUSE	0, 0, 1, 1	FAST FORWARD
1, 0, 1, 0	RECORD	0, 0, 1, 0	REWIND
1, 0, 0, 1	PLAY PAUSE, SLOW PAUSE	0, 0, 0, 1	————
1, 0, 0, 0	REVERSE *2 PLAY, REVERSE PLAY, PLAY, *2 PLAY	0, 0, 0, 0	STOP

This QOS command enables the execution state of the following commands to be checked by means of BIT6 and BIT7 of DATA ADRS1 which is part of the receive data that is returned after this QOS command is sent.

COUNTER SEARCH [STX]SCS: □□□□□□□□[ETX]
[STX]SCP: □□□□□□□□[ETX]

PLAY TO FRAME [STX]SPT: □□□□□□□□[ETX]

INSERT TO FRAME [STX]EAT: □□□□□□□□[ETX]
[STX]EIT : □□□□□□□□[ETX]
[STX]EVT: □□□□□□□□[ETX]

DIRECT SEARCH [STX]OSF: □[ETX]
[STX]OSR: □[ETX]

COUNTER CALIBRATE [STX]CCL[ETX]

These commands require a certain amount of time to be processed, and processing does not end at the same time. They can be checked by performing the following processing with the personal computer.

Processing example:
First, one of the above commands is sent. As a result, the processing continue flag becomes "1" when the VTR starts processing, hence when the QOS command is sent, processing can be accepted correctly. If then the QOS command is sent periodically, and the processing continue flag and the processing interrupt flag are checked, it is possible to know whether processing ended normally or was interrupted mid-way.

	Processing interrupt flag	Processing continue flag
Processing being continued	0	1
Processing interrupted	1	0
Processing ended	0	0

The following are possible reasons for a processing interruption.
- Operation was performed from the front.
- The tape end and beginning was detected.
- The CUE or REVIEW limit time (10 minutes) was exceeded.
- An abnormality occurred in the VTR.

Precaution
Commands, apart from the following, that are sent from the personal computer will not be processed correctly for a period of at least 150 msec., even if the processing continue flag becomes 0. Wait for at least 150 msec. before sending the following commands.
- Commands that can be accepted as soon as the processing continue flag becomes 0.
  SMC, SMF, QOP, QOS, QCD, QID, QRV, RCK

Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
QCD	This command inquires of the value of the present counter. The VTR can reply at any time. Example: Counter value: 1 hour; 25 minutes; 15 seconds; 10 frames Search mode: FINE [STX]CDFS ┬1251510[ETX] Blank	[STX]QCD[ETX]	[STX]CD□□□□□□□□□□[ETX] □: SEARCH MODE COASE; C FINE; F □: Indeterminate **Counter data** □: Sign −; − sign +; Blank □: Hours □: Minutes □ □: Seconds □ □: Frames □

■ **Other commands**

Send command	Description of operation	Personal computer send data	Reply data sent back from VTR
CRT	This command resets the counter. If the power is ON while the VTR is executing a command other than EVT, EAT, EIT, SPT, SCS, SCP, OSR, OSF or CCL, the VTR will accept commands from the personal computer. In the case of EVT, EAT, EIT, SPT, SCS, SCP, OSR, OSF or CCL, the VTR will return a command error. When the "S" indicator is lit, the VTR will go into the VISS mode.	[STX]CRT[ETX]	[STX]CRT[ETX]
CCL	This is the counter calibration command. It resets the counter after the tape has been rewound to the beginning. It can be executed if the VTR is in the STOP, PLAY, REW, FF, PLAY PAUSE, REVERSE PLAY, SLOW or SLOW PAUSE mode. It can be canceled by the OSP or OEJ command. The counter calibration operation will be canceled if the operation mode changes as a result of a key input from the VTR proper or the remote controller. If the VTR receives a command other than the OSP, OEJ, QCD, QOP, QOS, RCK, QRV or QID command while the counter is being calibrated, the VTR will return a command error.	[STX]CCL[ETX]	[STX]CCL[ETX]
RCK	This command checks if communication has been established (if the interface is operating). If the VTR is abnormal, a NACK can be returned; if it is normal, RCK can be returned.	[STX]RCK[ETX]	When normal: [STX]RCK[ETX] When abnormal: [NACK]
QRV	This command is used to refer to the version of the ROM used in the RS-232C in the VTR.	[STX]QRV[ETX]	[STX]VerX.XX 4/1/91[ETX] major version date miner version
QID	This command is used to refer to the type name of the VTR.	[STX]QID[ETX]	[STX]AG5700-E[ETX]

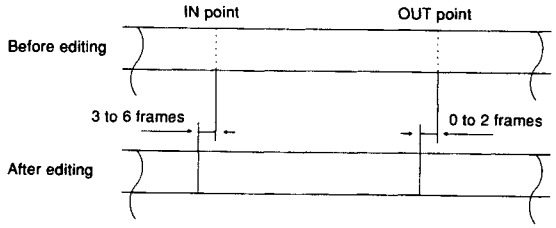
- If a key on the VTR or the remote controller, or the Memory/Search button, is operated while a CCL command is being executed, the operation of the CCL will not take place correctly, and processing will be interrupted. Take steps to ensure that these operations are not performed while a CCL command is being executed.
- If a CRT command is sent when "S" (search) appears on the display of the counter, the VTR will go into the VISS mode, preventing the counter from being reset. Consequently, when resetting the counter, be sure to press the Memory/Search button to cancel the search display in advance.

■ **Counter Accuracy and Editing Accuracy**

(1) Counter accuracy

Condition	Counter accuracy (TYPICAL)
When search was performed in loading state	±1 frame
When search was performed in FF/REW	FF: ±1 sec. REW: ±2 sec.
When editing was performed	+7 frames

(2) Editing accuracy (TYPICAL)



As shown in the above figure, the IN point is –3 to –6 frames and the OUT point is 0 to –2 frames. (The above figure shows the difference between the edit points.)
The error indicated in the above counter accuracy occurs, hence the IN point on the counter is +4 to +1 frames, and the OUT point on the counter is +7 to +5 frames.

■ **Send command and reply data from the VTR**

When a command is sent correctly, the format data of 1) described in the "(3) Receive format" (page 17) is sent back, however the VTR does not necessarily perform the operation specified by the command, even if it responds to the format of 1). For example, if the playback command "[STX]OPL[ETX]" is sent when the power to the VTR is OFF, [STX]OPL[ETX] will be returned from the VTR, however because the power is OFF, playback will not take place.

In such a case, the state of the VTR can be checked by using the VTR status sense command ([STX]QOP[ETX]).
If one of the following mistakes is made, an error code will be returned, and a certain amount of time will be necessary to search for the cause, so be very careful.

1. Failure to insert a blank

   Example:

   [STX]SCS:1425123[ETX]

   In this example, the operator intended to input a command that would search for 1 hour, 42 minutes, 51 seconds, 23 frames and display a STILL picture. When searching in the positive direction, be sure to insert a space after ":". The correct input is as follows.

   [STX]SCS:␣1425123[ETX]
   ↑
   Blank

2. When the data exceeded the allowable range

   Example:

   [STX]SPT:␣11070 15[ETX]
   ↑

   The data for "second" unit in this example is 70, hence it is incorrect.
   Be sure to input data within the range 0 to 59.

3. When the next command is sent, a limit will be imposed on the commands that can be accepted until the completion of processing. Note that apart from when the special commands shown in the table below (commands that interrupt processing) are being executed, an error code will be returned.

Send command	Special commands that can be accepted during processing		
[STX]EVT:□□□□□□□□[ETX] [STX]EAT:□□□□□□□□[ETX] [STX]EIT :□□□□□□□□[ETX]	[STX]OSP[ETX] [STX]QCD[ETX] [STX]QOP[ETX]	[STX]QOS[ETX] [STX]RCK[ETX] [STX]QRV[ETX]	[STX]QID[ETX]
[STX]SPT:□□□□□□□□[ETX] [STX]SCS:□□□□□□□□[ETX] [STX]SCP:□□□□□□□□[ETX] [STX]OSR:□□□□□□□□[ETX] [STX]OSF:□□□□□□□□[ETX] [STX]CCL[ETX]	[STX]OSP[ETX] [STX]OEJ[ETX] [STX]QCD[ETX] [STX]QOP[ETX] [STX]QOS[ETX]	[STX]RCK[ETX] [STX]QRV[ETX] [STX]QID[ETX]	

■ **Interval between the previous send command and the next send command**

The AG-5700 is a multi-microcomputer VTR. A command that is to be processed in some way by the system control microprocessor in the VTR requires time (approx. 150 msec) to be transmitted between the RS-232C interface microprocessor and the system control microprocessor. The commands indicated below are used to perform processing in the system control microprocessor, so allow an intervals of at least 150 msec when sending a command from the personal computer. When sending the same command such as when sending the ORW command in order to perform a REVIEW operation, send it continuously.

- Commands used to perform some kind of processing on the system control microprocessor.
  - OSP
  - OEJ
  - OPL
  - ORW
  - OFF
  - OPA
  - ORC
  - OAF
  - OAR
  - OPR
  - OSL
  - OSD
  - OSU
  - CRT
  - EIN
  - EAD
  - POW
  - PON
  - POF

■ **COMMAND table**

The following table shows send commands and operations for each mode seen from the personal computer.
[STX] is hexadecimal code 02H.
[ETX] is hexadecimal code 03H.
: is hexadecimal code 3AH.
Discrimination section and data section mean the ASCII code corresponding to that symbol.

• BASIC OPERATION COMMAND

Send command	Receive data from VTR	Description of operation
[STX]OSP[ETX]	Same as at left	STOP
[STX]OEJ[ETX]	Same as at left	EJECT
[STX]OPL[ETX]	Same as at left	PLAY
[STX]ORW[ETX]	Same as at left	REWIND
[STX]OFF[ETX]	Same as at left	FAST FORWARD
[STX]OPA[ETX]	Same as at left	PAUSE/STILL
[STX]ORC[ETX]	Same as at left	RECORD
[STX]OAF[ETX]	Same as at left	ADVANCE/FORWARD
[STX]OAR[ETX]	Same as at left	ADVANCE/REVERSE
[STX]OPR[ETX]	Same as at left	REVERSE PLAY
[STX]OSL[ETX]	Same as at left	SEARCH PAUSE
[STX]OSD[ETX]	Same as at left	SEARCH SPEED DOWN
[STX]OSU[ETX]	Same as at left	SEARCH SPEED UP
[STX]EIN[ETX]	Same as at left	INSERT
[STX]EAD[ETX]	Same as at left	AUDIO DUB
[STX]EIT:□□□□□□□□[ETX]	[STX]EIT[ETX]	INSERT VIDEO TO FRAME Sign; Hours; Minutes; Seconds; Frames
[STX]EAT:□□□□□□□□[ETX]	[STX]EAT[ETX]	INSERT AUDIO TO FRAME Sign; Hours; Minutes; Seconds; Frames
[STX]EVT:□□□□□□□□[ETX]	[STX]EVT[ETX]	INSERT AUDIO&VIDEO TO FRAME Sign; Hours; Minutes; Seconds; Frames
[STX]OSF:□[ETX]	[STX]OSF[ETX]	DIRECT SEARCH (+ direction)
[STX]OSR:□[ETX]	[STX]OSR[ETX]	DIRECT SEARCH (– direction)
[STX]POW[ETX]	Same as at left	POWER ON/OFF
[STX]PON[ETX]	Same as at left	POWER ON
[STX]POF[ETX]	Same as at left	POWER OFF

• SEARCH COMMAND

Send command	Receive data from VTR	Description of operation
[STX]SMC[ETX]	Same as at left	SEARCH MODE COASE
[STX]SMF[ETX]	Same as at left	SEARCH MODE FINE
[STX]SCP:□□□□□□□□[ETX]	[STX]SCP[ETX]	COUNTER SEARCH PLAY Sign; Hours; Minutes; Seconds; Frames
[STX]SCS:□□□□□□□□[ETX]	[STX]SCS[ETX]	COUNTER SEARCH PAUSE Sign; Hours; Minutes; Seconds; Frames
[STX]SPT:□□□□□□□□[ETX]	[STX]SPT[ETX]	PLAY TO FRAME Sign; Hours; Minutes; Seconds; Frames

• MODE AND DATA SENSE COMMAND

Send command	Receive data from VTR	Description of operation
[STX]QOP[ETX]	[STX] □□□[ETX]	STATUS SENSE
[STX]QOS[ETX]	[STX] □□□□□□ □□□□[ETX]	DECK STATUS SENSE
[STX]QCD[ETX]	[STX]CD □□□□□□ □□□□[ETX]	COUNTER SENSE

• OTHER COMMAND

Send command	Receive data from VTR	Description of operation
[STX]CRT[ETX]	Same as at left	COUNTER RESET
[STX]CCL[ETX]	Same as at left	COUNTER CALIBRATE
[STX]RCK[ETX]	Same as at left	ON LINE CHECK
[STX]QRV[ETX]	[STX]Ver.X.XX DATA[ETX]	ROM VERSION SENSE
[STX]QID[ETX]	[STX]AG5700-E[ETX]	DECK ID SENSE

AG-5700 RS-232C mode transition table

Trans. Comm. \ VTR mode	P OFF	STOP	EJECT	PLAY	REW	FF	PLAY PAUSE	RV PLAY	SLOW	SLOW PAUSE	REC	REC PAUSE	INSERT	INSERT PAUSE	A DUB	A DUB PAUSE	AV INSERT	AV INSERT PAUSE	EIT **	EAT **	EVT **	SPT **	SCS ** SCP **	OSR * OSF *	CCL	DEW
OSP				○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	ERD
OEJ	○	○		○	○	○	○	○	○	○									ERE	ERE	ERE	○	○	○	○	ERD
OPL		○			○	○		○	○	○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
ORW		○		*2		○	*2	*2	*2	*2									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
OFF		○		*3	○		*3	*3	*3	*3									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
OPA				○			○	○	○	○	○	○	○	○	○	○	○	○	ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
ORC		○					○			○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
CRT		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
OAF							○			○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
OAR							○			○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
POW	○	○	○	○	*1	○	○	○	○	○	○	○	○	○	○	○	○	○	ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
PON	○																		ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
POF		○	○	○	*1	○	○	○	○	○	○	○	○	○	○	○	○	○	ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
OPR				○			○		○	○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
OSL		○		○	○	○	○	○	○										ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
OSD									○	○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
OSU									○	○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
EIN							○			○						○			ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
EAD							○			○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
EIT							○			○				○					ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
EAT							○			○						○			ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
EVT																○		○	ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
SPT		○		○	○	○	○	○	○	○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
SCS		○		○	○	○	○	○	○	○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
SCP		○		○	○	○	○	○	○	○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD
OSR		○		○	○	○	○	○	○	○									ERE	ERE	ERE	ERE	ERE	○	ERE	ERD
OSF		○		○	○	○	○	○	○	○									ERE	ERE	ERE	ERE	ERE	○	ERE	ERD
CCL		○		○	○	○	○	○	○	○									ERE	ERE	ERE	ERE	ERE	ERE	ERE	ERD

RS-232C Command (Personal computer → VTR)

This table indicates the way in which the VTR operates in response to a command from the personal computer. There are various cases: Even for the same command, the VTR will operate, not operate, return an error, or ignore the command depending on the state of the VTR. For this reason, refer to the section on programming using the personal computer.

How to read the table

The VTR mode is the present VTR state.
The send code is a control code output by the personal computer.

For example

(1) It can be seen that the VTR will stop when the VTR is in the REW state and OSP (STOP command) is sent from the personal computer.
If OPA (pause command) is sent, the column in the table is blank, so it can be seen that nothing will happen (an error will not occur either).

(2) It can be seen that when the VTR is in the EIT mode nothing will happen if OEJ (EJECT command) is sent from the personal computer, but that if OSP (STOP command) is sent the VTR will accept this command and stop.
It can also be seen that an error will occur if the VTR is in the EIT mode and OPL (PLAY command) is sent.

○ ..... Operation can be done
*1 ..... Tape rewound to beginning, then power OFF
*2 ..... Rev operation during continuous output
*3 ..... Cue operation during continuous output
ERE ... The ERE code is returned.
ERD ... The ERD code is returned.